

# TM 9-1812

WAR DEPARTMENT TECHNICAL MANUAL

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ORDNANCE MAINTENANCE

## 5-TON: 4x2 TRACTOR TRUCK (C.O.E.)

(IHC MODELS H-542-9 AND H-542-11  
MARMON-HERRINGTON  
MODEL H-542-11  
KENWORTH MODEL H-542-11)

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**WAR DEPARTMENT**

**26 MAY 1944**

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TM 9-1812, Ordnance maintenance, 5-ton 4x2 tractor truck (C.O.E.) (IHC models H-542-9 and H-542-11, Marmon-Herrington Model H-542-11, Kenworth Model H-542-11), is published for the information and guidance of all concerned.

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BY ORDER OF THE SECRETARY OF WAR:

G. C. MARSHALL,  
*Chief of Staff.*

OFFICIAL:

J. A. ULIO,  
*Major General,*  
*The Adjutant General.*

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(For explanation of symbols, see FM 21-6.)

# CONTENTS

		Paragraphs	Pages
CHAPTER	1. INTRODUCTION . . . . .	1- 2	5- 6
CHAPTER	2. ENGINE . . . . .	3- 21	7- 63
SECTION	I. Enginedescriptionanddata.	3- 4	7- 11
	II. Disassembly of engine into subassemblies . . . . .	5- 6	12- 21
	III. Disassembly, cleaning, in- spection, repair, and as- sembly of subassemblies	7- 19	22- 46
	IV. Assembly of engine . . . . .	20	47- 58
	V. Fits and tolerances . . . . .	21	59- 63
CHAPTER	3. CLUTCH . . . . .	22- 26	64- 77
CHAPTER	4. COOLING SYSTEM . . . . .	27- 37	78- 89
SECTION	I. Description . . . . .	27	78
	II. Radiator . . . . .	28- 29	79- 81
	III. Water pump . . . . .	30- 35	82- 87
	IV. Thermostats . . . . .	36- 37	88- 89
CHAPTER	5. FRONT AXLE . . . . .	38- 43	90-102
CHAPTER	6. REAR AXLE . . . . .	44- 49	103-131
CHAPTER	7. TRANSMISSION . . . . .	50- 55	132-157

TM 9-1812

## ORDNANCE MAINTENANCE—5-TON 4 x 2 TRACTOR TRUCK (C.O.E.)

## CONTENTS — Cont'd

		Paragraph	Pages
CHAPTER 8.	PROPELLER SHAFTS AND CENTER BEARING . . . . .	56- 63	158-166
SECTION I.	Propeller shafts . . . . .	56- 59	158-166
SECTION II.	Propeller shaft center bearing . . . . .	60- 63	161-166
CHAPTER 9.	BRAKES . . . . .	64- 74	167-175
SECTION I.	Service brakes . . . . .	64- 68	167-172
SECTION II.	Drive shaft brake . . . . .	69- 74	173-175
CHAPTER 10.	STEERING GEAR AND DRAG LINK . . . . .	75- 84	176-190
SECTION I.	Steering gear . . . . .	75- 80	176-187
SECTION II.	Drag link . . . . .	81- 84	188-190
CHAPTER 11.	CAB . . . . .	85- 88	191-196
CHAPTER 12.	FUEL TANKS . . . . .	89- 92	197-199
CHAPTER 13.	SPRINGS . . . . .	93- 98	200-204
CHAPTER 14.	FRAME . . . . .	99-101	205-210
CHAPTER 15.	SPECIAL TOOLS . . . . .	102-103	211-213
REFERENCES . . . . .			214-216
INDEX . . . . .			217-224

# CHAPTER 1

## INTRODUCTION

### 1. SCOPE.

a. The instructions contained in this manual are for the information and guidance of personnel charged with the maintenance and repair of the 5-ton, 4 x 2 tractor truck, International Models H-542-9 and H-542-11, Marmon-Herrington model H-542-11, and Kenworth Model H-542-11. These instructions are supplementary to field and technical manuals prepared for the using arms. This manual does not contain information which is intended primarily for the using arms since such information is available to ordnance personnel in TM 9-812.

b. This manual contains a description of, and procedure for, the maintenance and overhaul of all parts of the vehicle.

c. TM 9-812 contains technical information required for the identification, use, and care of the materiel, and is designed to guide using arm personnel in performing maintenance work within their jurisdiction.

d. Since ordnance maintenance personnel will usually receive for overhaul and repair engines, clutches, transmissions, and other major vehicle units that have already been removed by using arm personnel, and will return reconditioned units to using arm personnel for replacement installation, the procedures for removal and installation of such major units are given in TM 9-812 and not repeated in this manual.

e. Other technical maintenance manuals pertaining to this vehicle are as follows:

(1) TM 9-1825A, Ordnance Maintenance-Electrical equipment (Delco-Remy), covers cranking motor, generator, generator regulator, and distributor.

(2) TM-9-1826C, Ordnance Maintenance-Carburetors (Zenith), covers carburetor and governor.

(3) TM 9-1827A, Ordnance Maintenance-Power Brake System (Bendix-Westinghouse), covers air brake system accessories.

(4) TM 9-1828A, Ordnance Maintenance-Fuel pumps (A-C), covers fuel pump and fuel filter.

(5) TM 9-1829A, Ordnance Maintenance-Automotive Speedometers, tachometers, and recorders, covers speedometer and tachometer.

### 2. MWO AND MAJOR UNIT ASSEMBLY REPLACEMENT RECORD.

a. **Description.** Every vehicle is supplied with a copy of A.G.O. Form No. 478 which provides a means of keeping a record of each MWO completed or major unit assembly replaced. This form includes spaces for the vehicle name and U.S.A. registration number, instructions for use, and information pertinent to the work accomplished. It is very important that the form be used

**TM 9-1812****2****ORDNANCE MAINTENANCE—5-TON 4 x 2 TRACTOR TRUCK (C.O.E.)**

as directed and that it remain with the vehicle until the vehicle is removed from service.

b. **Instructions for Use.** Personnel performing modifications or major unit assembly replacements must record clearly on the form a description of the work completed, and must initial the form in the columns provided. When each modification is completed, record the date, hours and/or mileage, and MWO number. When major unit assemblies such as engines, transmissions, or transfer cases are replaced, record the date, hours and/or mileage, and nomenclature of the unit assembly. Minor repairs and minor parts and accessory replacements need not be recorded.

c. **Early Modifications.** Upon receipt, by a third or fourth echelon repair facility, of a vehicle for modification or repair, maintenance personnel will record the MWO numbers of modifications applied prior to the date of A.G.O. Form No. 478.

## CHAPTER 2

### ENGINE

#### Section I

### ENGINE DESCRIPTION AND DATA

#### 3. DESCRIPTION AND OPERATION.

a. **Description** (fig. 1). The gasoline engine is a 4-cycle, 6-cylinder-in-line, overhead-valve type. The engine serial number is stamped on a pad at the front of the left side of the crankcase just below the cylinder head. The cylinder dry-type sleeves or liners are replaceable. The detachable cylinder head contains all valves, valve guides, and springs. The cylinders are numbered from front (fan and timing gear end) to rear. As viewed from the front end of the vehicle, engine crankshaft rotation is clockwise. The intake and exhaust manifolds, carburetor, and generator are located on the right side of the engine. The cranking motor, distributor, fuel pump, and oil filter are located on the left side. The oil filler tube and oil level bayonet gage are also on the left side. The water pump is located at the front of the engine.

b. **Construction** (figs. 2 and 3).

(1) The generator, air compressor, fan, and water pump are driven by V-type belts from a pulley mounted on the front end of the crankshaft. The distributor, mounted at the top of the tachometer drive housing on the left side of the engine, is driven by the camshaft through an extension of the oil pump shaft.

(2) The exhaust and intake manifolds are bolted to each other and to the right side of the cylinder head. The exhaust manifold is made of three parts which are held together by expansion clamps and seals. The intake manifold is cast in one piece.

(3) A vibration damper is provided at the front end of the crankshaft.

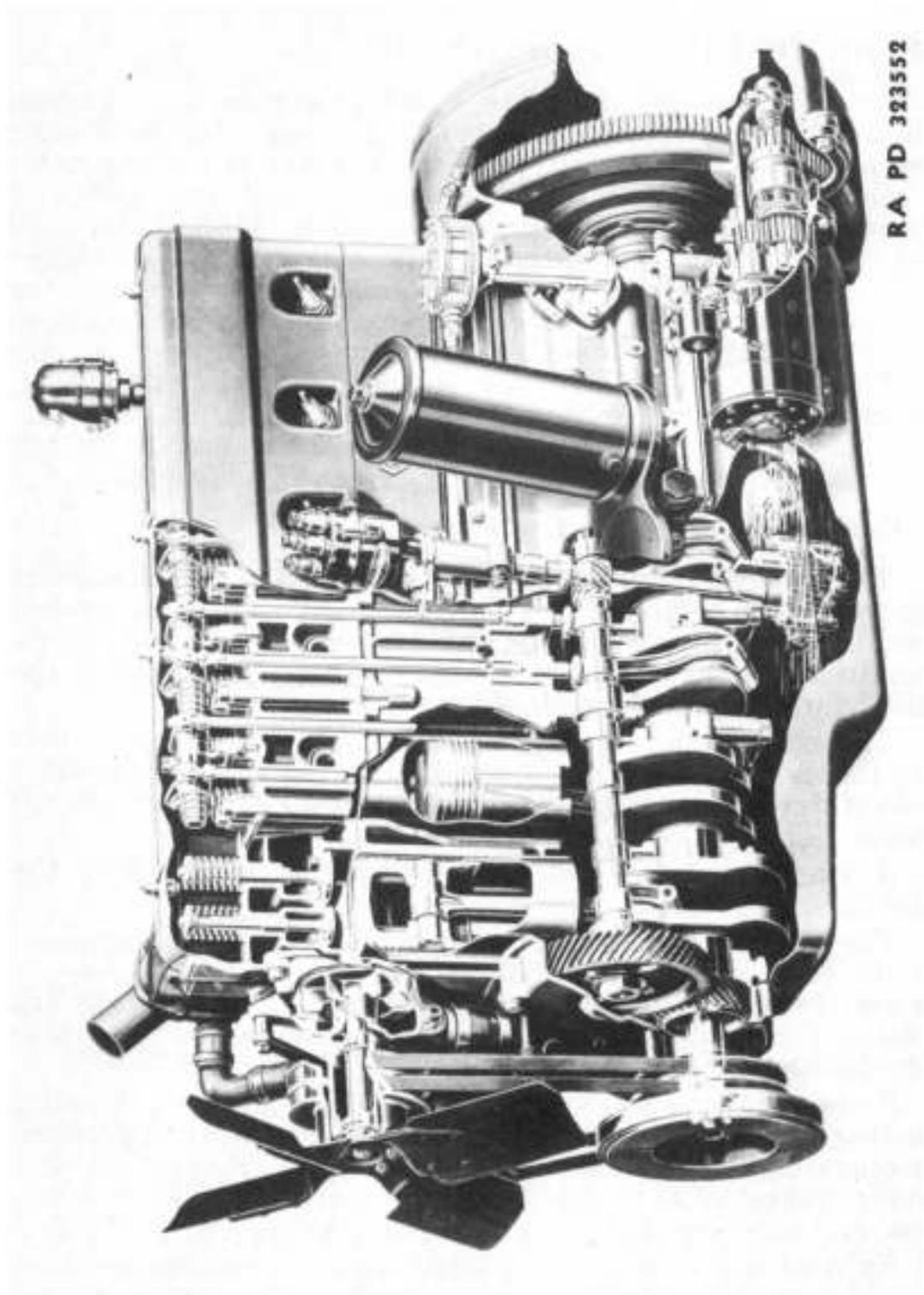
(4) The cylinder block and crankcase are cast in one piece, and carry the seven crankshaft main bearings. Cylinder sleeves or liners are of dry type and removable. Water circulating passages completely surround the cylinders in the crankcase and also provide coolant to the cylinder head.

(5) Full continuous pressure lubrication is supplied to all main, connecting rod and camshaft bearings, and to the timing gears, valve operating rocker arms, and piston pins. Spray from the revolving crankshaft is thrown plentifully onto the cylinder walls, pistons, and other moving parts inside the engine.

(6) Exhaust valve seats are of alloy steel and are pressed into place. These valve seats lengthen the period between valve reconditioning operations. The exhaust valve face is ground at an angle of 45 degrees. The intake valve face angle is 15 degrees. Valves and valve seats are cooled by continuous circulation of water through the cylinder head.

TM 9-1812  
3

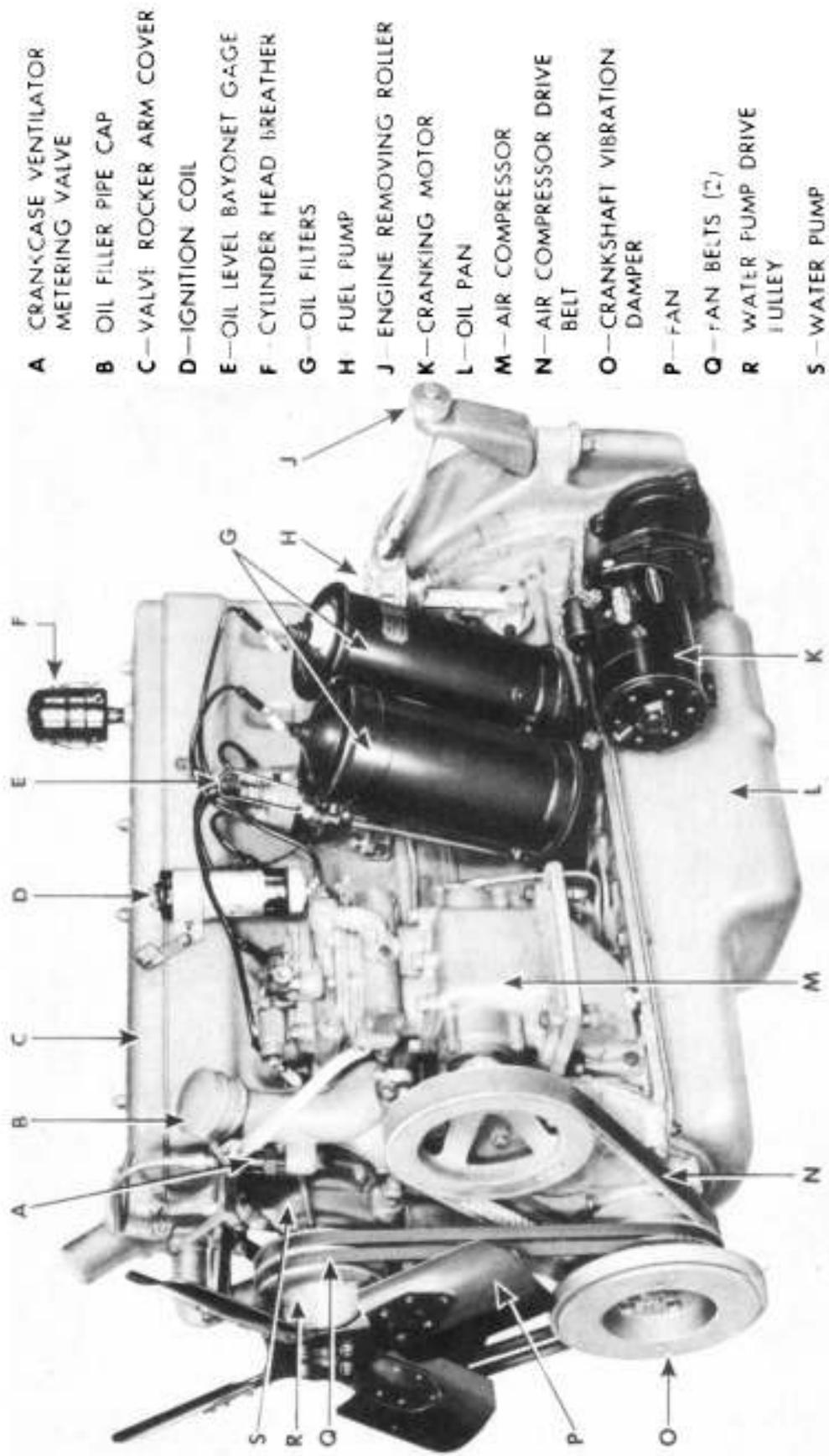
ORDNANCE MAINTENANCE—5-TON 4 x 2 TRACTOR TRUCK (C.O.E.)



RA PD 32352

Figure 1 — Engine Sectional View

**ENGINE DESCRIPTION AND DATA**



- A CRANKCASE VENTILATOR METERING VALVE
- B OIL FILLER PIPE CAP
- C VALVE; ROCKER ARM COVER
- D IGNITION COIL
- E OIL LEVEL BAYONET GAGE
- F CYLINDER HEAD BREATHER
- G OIL FILTERS
- H FUEL PUMP
- J ENGINE REMOVING ROLLER
- K CRANKING MOTOR
- L OIL PAN
- M AIR COMPRESSOR
- N AIR COMPRESSOR DRIVE BELT
- O CRANKSHAFT VIBRATION DAMPER
- P FAN
- Q FAN BELTS (2)
- R WATER PUMP DRIVE PULLEY
- S WATER PUMP

**RA PD 393302**

**Figure 2 — Engine with Accessories Left Front**